

Work Order ID 65122

January 6, 2011 1:54:15 PM



Page 1

Item ID:	D6104-005	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Round Billet, 17-4					
Start Date:	1/06/11	Start Qty:	10.00		Cust Item ID:	
Required Date:	1/21/11	Req'd Qty:	10.00		Customer:	
Reference:						

Approvals:	Process Plan:	<u>CL</u>	Date:	<u>11/01/06</u>	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6104	Rev B								

100		0.00	
	PURCHASING		<u>CL</u> <u>11/01/07</u> <u>(10)</u>

Purchasing	Memo	0.00	
Purchasing	Issue P/O: <u>13235</u> □a)Description: S.S round billet □b) Ø4.00" x 5.10" long □c) Tolerance on all dimensions are +0.030"/-0.000" □d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) □e)One blank makes 2 parts □f) Material certification required		

110	Receive & Inspect for Damage & Mat'l Certs	0.00	
			<u>CL</u> <u>11/01/19</u> <u>(10)</u>
Packaging	Memo	0.00	
Packaging	Ensure material certification is attached		

120	QC6- Inspect dimensions to drawing	0.00	
			<u>CL</u> <u>11/01/26</u> <u>(10)</u>
QC	Memo	0.00	
Quality Control	Ensure Material certification comply to Dwg D6104		

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January 6, 2011 1:54:15 PM



Page 2

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Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 Packaging Packaging	Identify as per dwg & Stock Location: <u>114T43</u> Memo	0.00 0.00		<u>SL 11/01/26</u>	<u>(10)</u>				
140 QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00							<u>11/01/26</u> <u>CL 11/01/26</u>

Picklist Print

January 6, 2011 1:54:14 PM

Work Order ID: 65122

Parent Item: D6104-005

Parent Item Name: Round Billet, 17-4




Start Date: 1/06/11

Required Date: 1/21/11

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP A: 01.05.08 New Issue EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Sta
D6104-005P  17-4 SS Roundbar 4.00"OD		Purchased	No			110	Each	0.0000	1	10		1/4/11 15:10	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

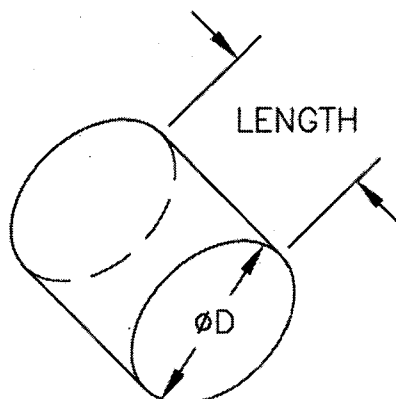
NOTE: Date & initial all entries



DESIGN <i>RT</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 *[Signature]*

SPECIFICATION CONTROL DRAWING



C211/01/06
W10'65122

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO13235**

Purchase Order Date 1/07/11

PO Print Date 1/07/11

Page Number 1 of 2

Order From : VC-MET001
METAUX CASTLE
A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

Contact Name		Buyer	Chantal Lavoie
Vendor Phone	514 694 9575	Requisition Nbr	
Vendor Fax	514 695 3281	Tax Resale Nbr	10127-2607
Vendor Account Nbr		Terms	Net 30
		Currency	CAD
		FOB	Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FAXED
1/11/01/07

e-mail trace

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
D6101-003P		7075-T7351 2X6.25X7.875	1/11/11 Yes	20.00 Each	Yours ppd	\$59.1600	\$1,183.20
		Special Inst: AS PER DWG D6101 REV. B B65151 MATERIAL: 7075-T7351 (QQ-A-250/12) SIZE: 7.875" X 6.250" X 2.00" THICK GRAIN DIRECTION ALONG 7.875" LENGTH TOLERANCE ON ALL DIMENSIONS ARE + 0.030" / -0.000" PLEASE SHIP ASAP					
D6101-003P		7075-T7351 2X6.25X7.875	1/21/11 Yes	10.00 Each	Yours ppd	\$59.1600	\$591.60
		Special Inst: MATERIAL & SIZE AS ABOVE B65175					
D6104-005P		17-4 SS Roundbar 4.00"OD	1/21/11 Yes	10.00 Each	Yours ppd	\$76.0000	\$760.00

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 1/07/11

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Shipment No:644226

Ship From: Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 18-JAN-11	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 644226-2	

Shipment Details	Final Destination Branch - MON
-------------------------	---------------------------------------

Order No 1203702	Line No 1	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (± .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643				
Purchase Order No 13235		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 10 PCS		Invoice Qty 10 PCS	
Details							
Delivery No. 64041346	Mill	Heat Number 135314	Mech Id	PCS 10	Width (IN)	Length (IN)	Shipped Qty (LBS) 187.29

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.			
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.			
Reviewed by Authorized Castle Metals Representative:		Date:	

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000736570



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
205 Talley Metals Lane
McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4592

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08/05/10

CUSTOMER / BESTELLER / CLIENT

A.M. CASTLE & CO

SELLER / VERKAUFER / VENDEUR PAGE 2 OF 2

3400 N WOLF RD
FRANKLIN PARK IL 60131

HVL

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE	CARPENTER NO. / WERKS-NR. / N° DE REFERENCE INTERNE	DATE / DATUM / DATE	WEIGHT / GEWICHT / POIDS
58282-007	W71565	08/05/10	1455.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE : 135314

CAPABILITY

900 F (482 C) , 01 HR

AIR COOL

YIELD STRENGTH, (0.20 %) KSI (MPA) 178.0 (1227)
TENSILE STRENGTH, KSI (MPA) 199.0 (1372)
ELONGATION IN 2.00" , % 15.0
REDUCTION OF AREA, % 48.0
HARDNESS , HBW 396.0

(CONVERTED FROM TENSILE STRENGTH)

NO WELD REPAIR PERFORMED
MATERIAL PRODUCED ON THIS ORDER WAS MELTED AND MANUFACTURED IN THE U.S.A.
MATERIAL HAS BEEN MELTED IN USA OR QUALIFYING COUNTRY TO DFARS REQUIRE-
MENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1,
SUPERSEDED BY DFARS REQUIREMENTS DFARS 252.225-7008 AND 252.225-7009.
WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE
PURCHASE ORDER AND SPECIFICATION REQUIREMENTS. CERTIFICATE OF TEST IS
PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1 OF EN 10204 (DIN50049)

STEPHANIE E. MCCULLUM
QUALITY ASSURANCE ENGINEER
CARPENTER TECHNOLOGY CORPORATION

Castle Metals FP

HEAT NUMBER 135314
MECHANICAL ID
ITEM CODE 42464
LOT NUMBER
PO NUMBER 58282
RECEIPT DATE 8-13-2010
SUPPLIER TALLEY
SPECIFICATION
LCS NO
COMMENT
APPROVED BV

Stephanie E. McCullum

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CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

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08/05/10

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKÄUFER/VENDEURPAGE 1 OF 2

A.M. CASTLE & CO

3400 N WOLF RD
FRANKLIN PARK IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
58282-007	W71565	08/05/10	1455.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 135314

PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
PART NUMBER: IAC 42464

SPECIFICATION: CASTLE 3174-10 CAP OF COND. H900 REV 8 (04/03/08)
AMS 5643 REV R (02/ /08) (UNS S17400) (AISI 630)
ASTM-A564-04 (2009)
ASME-SA564 2007 EDITION-09B ADDENDA

SIZE 4.000000 IN. (101.60 MM) RD BAR

PRIMARY HEAT CHEMISTRY(WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN(XRF)	SI(XRF)	P (XRF)	S (COM)	CR(XRF)
0.03	0.81	0.39	0.019	0.025	15.18
NI(XRF)	MO(XRF)	CU(XRF)	N (FUS)	CB(XRF)	TA(XRF)
4.28	0.13	3.68	0.030	0.25	LT .02
CB+TA					
0.27					

THIS HEAT MELTED BY THE ARC/AOD PROCESSES
NO WELD REPAIR.

MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE CONTAMINATION.

HOT REDUCTION RATIO = 6:1

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HBW - 358 (MIDRADIUS)

MAGNETIC PARTICLE: FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE LESS THAN 1.00%

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

CONTINUED ON NEXT PAGE

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